

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1 and 4-11 are presently active; Claims 1 and 7 have been presently amended. Claims 2 and 3 were previously canceled without prejudice. No new matter has been added.

Claims 1 and 4-11 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Claims 7-11 were rejected under 35 U.S.C. 112, first paragraph as failing to comply with the enablement requirement. Claims 1, 4 and 7-11 were rejected under 35 U.S.C. § 102(a) as being unpatentable over the patent issued to Kato et al (PN. 5,852,504) in view of the patents issued to Sekiguchi et al (Patent No. 5,798,864) and Popovich et al (Patent No. 6,115,152).

Regarding new matter, the Office Action asserts that the specification fails to disclose LEDs arranged on a two-dimensional grid pattern. Yet Applicant's Figure 12(a) and 12(b) show two examples of red, blue and green LEDs arranged on a two-dimensional grid pattern with the distances in the X-Y coordinate system being defined by d_1 in Figure 12(a) and d_7 Figure 12(b). This arrangement clearly supports the claim language of LEDs arranged on a two-dimensional grid pattern.

The Office Action asserts that there is no support in the specification for light beams projected to a half-mirror being spatially shifted from each other. Applicant first points out that original Claim 7 defined that the optical axes of color light beams from the red, blue, and green LEDs were shifted from each other. The original claims are part of the filed specification. Regardless, this configuration is shown in Figure 12 of the specification for unit 63. The specification states on pages 33 and 34 that "the pinhole filter 64 is prepared for each of the R, G, and B light sources." Thus, when unit 63 emits the red, blue, and green

light, the emitted light as shown in Figure 11 will pass through each of the respective pinhole filters 64, and thus will be spatially offset. The collimating lens 65 reshapes each of the beams into a parallel light. The specification states on page 34 that “each beam of parallel light is incident on the reflective LCD 61 at a different angle.”

Since the result of having spatially offset beams is to have each beam of parallel light is incident on the reflective LCD 61 at a different angle, Claim 7 has been amended to define that the light beams are projected to the half mirror and onto the reflective liquid crystal display to be incident at respective different angles, which is clearly supported by the passages in the specification and Figures 11 and 12.

Thus, the new matter rejection should be removed.

Regarding enablement, M.P.E.P. § 2164.01 states that the test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation. In the present case, Applicants have shown an arrangement in Figures 11 and 12 which shows one of ordinary skill in the art how systematically to arrange different color beams to be spatially offset. Further, the specification defines relationships for the optical components spacings (d_1 , d_2 , d_3 , and d_7) in Figures 11 and 12. See page 34 of the specification. Accordingly, undue experimentation is not required.

Thus, the enablement rejection should be removed.

Regarding the rejection on the merits, the Office Action asserts that one skilled in the art would have the general knowledge that in order for the collimated light beams from the three light sources in Kato et al to illuminate the spatial light modulator (200, 202, 204) respectively and to provide orthogonal arranged parallel color lights to incident on the laser

light to incident on the half mirror (220, and 222) and be combined as color image light to the observer (224), the semiconductor laser light sources (206, 208 and 210) has to be aligned with the optical axes of the SLM (200, 202 and 204) respectively, since the collimating lens and the spatial light modulation do not have the function to turn the light beam to be orthogonal arranged afterwards. The Office points to Figure 1 of Kiyomoto et al (U.S. Patent No. 5,768,026) to show an arrangement of color LED sources in a two dimensional pattern to provide collimated and parallel light beams incident on a half mirror so that the parallel and collimated light beams be combined to form color image light.

Yet, in this arrangement of Kiyomoto et al, the light sources 1a and 1b emit light along a plane containing the two light sources. The claims as clarified define that the three light-emitting diodes emit light out of a plane formed by the grid pattern and toward the half-mirror. This configuration is shown by way of example in Figures 11 and 12 of the specification. This configuration is patentably distinct from Kiyomoto et al.

Furthermore, in all the arrangements shown in Kato for the multiple color light sources shown therein (see Figures 35 and 36), the color light sources are arranged in a linear fashion. Kato does not disclose or suggest that the multiple color light sources are or would be arranged on a two dimensional grid pattern, with one of the light sources being offset from a line connecting the other two remaining light sources and the light sources configured to emit light out of a plane formed by the grid pattern and toward the half-mirror, as presently clarified. Indeed, in Kato, light reflected to the observer depends on a proper reflection angle from half mirrors 200, 220, and 222. Displaying one mirror to be offset from the linear array would result in an incorrect angular reflection to the observer for this mirror, making this embodiment of Kato et al unsuitable for its intended purpose.

Popovich et al was applied in the final Office Action for its teaching in Figures 20a and 20b of color lights beams “illuminating different sections of the display surface.”

However, the arrangement in Popovich et al is that of an array of light sources 2002 emitting light along a common line. There is no disclosure or suggestion in Popovich et al that the light sources 2002 are or would be arranged on a two dimensional grid pattern, with one of the diodes being offset from a line connecting the other two remaining diodes and the diodes configured to emit light out of a plane formed by the grid pattern and toward the half-mirror, as presently clarified.

Indeed, off setting one of the light sources from the array 2002 would result in the one displaced light source having an improper critical angle of reflection, see Figure 20b of Popovich et al, making this embodiment of Popovich et al unsuitable for its intended purpose.

Hence, for all these reason, independent Claims 1 and 7 (and the claims dependent therefrom) are believed to patentably defined over the references of record.

Finally, this amendment is submitted in accordance with 37 C.F.R. §1.116 which after final rejection permits entering of amendments canceling claims, complying with any requirement of form expressly set forth in a previous Office Action, presenting rejected claims in better form for consideration on appeal, or presenting amendments touching on the merits upon a showing of good and sufficient reasons why the amendment is necessary and was not presented earlier. the present amendment presents minor clarifying changes not presented before because the examiner's broad reading of the claims was not manifest until the final Office Action cited (but did not apply) Kiyomoto et al, not previously of record.

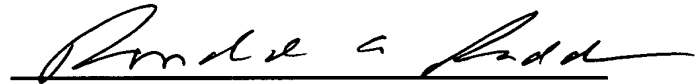
No new matter has been added, and this amendment does not raise new issues requiring further consideration and/or search given the past consideration and search that have occurred. It is therefore respectfully requested that the present amendment be entered under 37 C.F.R. §1.116.

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Consequently, in view of the present amendment and in light of the above discussions, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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